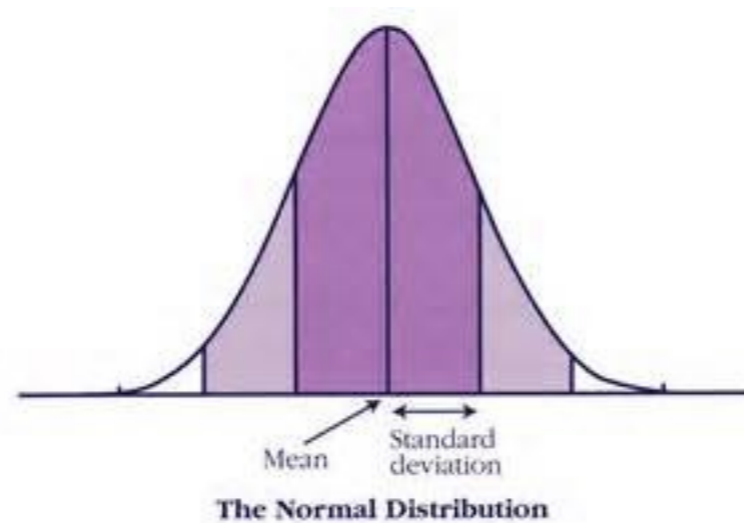


Inferential statistics : Standard Deviation



Ask Mish



STANDARD DEVIATION (S) = average dispersion around the mean

If **N= sample size** is too big to be measured we take a **number n of observations** from it and measure them.

Each measurement **X** is a number +error. Each time, the next measurement contains less error and is closer to the mean. This is called in statistics **REGRESSION to the MEAN**.

Finally we obtain a normal distribution where observations are dispersed from min to max around a mean. One way to measure **DISPERSION** is using a unit called **STANDARD DEVIATION (S)** which is an average dispersion around the mean.

Standard Deviation

$$S = \sqrt{\frac{\sum_{k=1}^n (x_k - \bar{x})^2}{n-1}}$$

where
 x_k is the observation value
 \bar{x} is the mean value
 n is the number of observations
 Σ means to sum or add up

©The COMET Program

- **n-1 = degree of freedom (observations- control)**